

First records of *Dendrothereua lincei* (Wood, 1867) (Chilopoda, Scutigeromorpha, Scutigeridae) in Colombia

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Abstract

We collected nine scutigeromorph centipede specimens in Colombia, which are the first records of *Dendrothereua lincei* (Wood, 1867) from the country and South America, expanding the the known distribution of the species. With these data, one more species of Scutigeromorpha centipede is added to the chilopod fauna of the region.

Keywords

House centipede, Neotropical, new record, South America

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Introduction

Centipedes in the order Scutigeromorpha are distributed globally except for Antarctica and the Sahara Desert. The regions with the greatest scutigeromorph centipede diversity are southern and eastern Africa, southern India, southeastern Asia, and Australia (Bonato and Zapparoli 2011). About 96 valid species are known, divided into three families, Scutigeridae Leach, 1814 (90 species), Scutigerinidae Attems, 1926 (three species), and Pselliodidae Chamberlin, 1955 (three species) (Bonato et al. 2011).

In Colombia, *Sphendononema guildingii* (Newport, 1845) (family Pselliodidae), was previously recognized as the only species in the country. This species has a broad geographic distribution which includes the western and eastern Andes and the Amazonian, Pacific, Orinoquia, and Caribbean regions and an altitudinal range from 60 m to 2,200 m a.s.l. (Chagas-Jr. et al. 2014). Based

on nine recently collected specimens from one locality, we report *Dendrothereua lincei* (Wood, 1867) (family Scutigeridae) for the first time from Colombia and South America; *D. lincei* is only the second species of scutigeromorph centipede from Colombia and the first of its genus and family from the country.

Methods

We collected and studied nine specimens from two occasions at a single locality in the Department of Atlántico, northern Colombia (Colombian Atlantic Coast). The region where the specimens were collected is dry and hot, characterized by low rainfall (up to ~870 mm annually) and an average temperature of 32 °C (ICA 2022). The vegetation is highly transformed by deforestation for agriculture and livestock; however, there are remnants

of tropical dry forest. We collected specimens from an area with sandy soil completely devoid of vegetation and close to a body of water. The specimens were manually collected hands-free on the same day at the same location for approximately four hours at night. All specimens were preserved in 75% ethanol. Specimens were photographed using a Leica M205C stereoscopic microscope at the laboratory of systematics and taxonomy of terrestrial arthropods at the Federal University of Mato Grosso. The distribution map was created using QGIS v. 3.24. The final images were processed with GIMP and Inkscape. All the specimens were deposited in the Myriapoda collection of the National University of Colombia (ICN-UNAL).

The identification of family, genus, and species follow keys or descriptions by Edgecombe (2011), Edgecombe and Cupul-Magaña (2008), Perez-Gelabert and Edgecombe (2013), and Würmli (1973). We follow the terminology of Bonato et al. (2010) for the morphological characteristics. The species identification was confirmed by the second author and Greg D. Edgecombe.

Results

Order Scutigeromorpha Pocock, 1895

Family Scutigeridae Leach, 1814

Subfamily Scutigerinae Leach, 1814

Genus *Dendrothereua* Verhoeff, 1944

Dendrothereua linceci (Wood, 1867)

Figures 1, 2

New records. COLOMBIA – **Atlántico** • Repelón; Piscicola San Cristobal Station (University of Cartagena); 10°24'17.52"N, 075°03'51.66"W, 7 m a.s.l.; 11.XII.2014; Carlos Parafán leg.; 1 spec., ICN M-Ch-1003 (juvenile) • Same locality; 25.III.2018; S. Galvis, D. Martínez, M. Carrillo and W. Zapata leg.; 8 spec, ICN M-Ch-1027, ICN M-Ch 1028, ICN M-Ch-1029 (Fig. 1A; ♀), ICN M-Ch-1030, ICN M-Ch-1031, ICN M-Ch-1032 (♀), ICN M-Ch-1033 (♂), ICN M-Ch-1034 (unsexed).

Identification. The examined specimens (living specimens) had a color pattern characterized by two dark bands laterally on the tergal plates and a lighter central band parallel to the longitudinal axis of the body; they were generally bluish with little contrast between dark and light areas (Figs. 1A, B). The morphology of the annulations had proportions typical for the family, wider than long (Fig. 1E). The dorsal surfaces of tergites were without spines (Fig. 1D) (Edgecombe 2011). Spicules (spiculae) were about half the length of the setae (bristles) (Edgecombe and Cupul-Magaña 2008; Perez-Gelabert and Edgecombe 2013). The combination of these two last characters—the distribution of the spines and the length of spiculae in relation to the setae—is diagnostic in separating *Dendrothereua* from the other four scutigerine genera. The female gonopod in the examined individuals was longer than wide, and the metarthron was shorter

than proarthron+mesarthron, claw-like (Fig. 1C). This female gonopod morphology is consistent with descriptions by Würmli (1973) and Perez-Gelabert and Edgecombe (2013) of the species and by Edgecombe (2011) for the genus. The original description of *D. linceci* lacks illustrations and presents little information that is helpful for the identification of this species, partly because the type specimens were examined dry, which is why some of the morphological characteristics and coloration described by Wood (1867) may be partially wrong.

Distribution. Previously, *D. linceci* was reported in the southern United States, some Caribbean, Mexico, and most of Central America including Panama (Würmli 1973; Stoev 2002; Edgecombe and Cupul-Magaña 2008; Perez-Gelabert and Edgecombe 2013; Flores-Urtiaga et al. 2015; Cupul-Magaña and Bueno-Villegas 2016). Some records, such as from Honduras, Panama, and Grenada, which have been widely disseminated in the more recent literature (eg. Würmli 1973; Stoev 2002), may have been misinterpreted of locality names in older literature and, therefore, should not be considered in determining the species' geographic distribution (Martínez-Muñoz 2022). The occurrence of *D. linceci* in Texas, USA, was questioned by Mercurio (2010). He stated that Würmli (1973) redescribed the species without examining the type specimen of *D. linceci* (probably lost) and that no one made subsequent efforts to collect another specimen from the type locality in Texas. Therefore, he suggested further investigation and new collections to confirm the presence of *D. linceci* in Texas.

The geographic distribution of *D. linceci* can now reliably be said to extend from Mexico (Sinaloa, Isla María Cleofas, Jalisco and Michoacán) (Cupul-Magaña 2019; Cupul-Magaña and Flores-Guerrero 2018; López-Bonel et al. 2019) south in Central America to Guatemala, El Salvador, Nicaragua, and Costa Rica, and in the Caribbean region from Cuba, Dominican Republic, Saint John in the U.S. Virgin Islands (Muchmore 1993), and Martinique (Iorio and Coulis 2020). Our new data expands the geographic distribution of *D. linceci* to northern South America, specifically the Caribbean region of Colombia (Fig. 2).

Habitat. The first ecological notes on *D. linceci* were mentioned by Wood (1867) who reported that the most common places to find the species were under rocks, in hollow logs, and especially in unused fireplaces. Perez-Gelabert and Edgecombe (2013) did not describe the sites where they collected *D. linceci*, but they did report that collections were done at night using entomological nets, both at low-elevation sites and those above 2000 m. López-Bonel et al. (2019) mentioned that the species can be found during the day on rocks, in leaf litter, and under or inside rotting logs. We found all active specimens at night, walking at the surface of leaf litter.

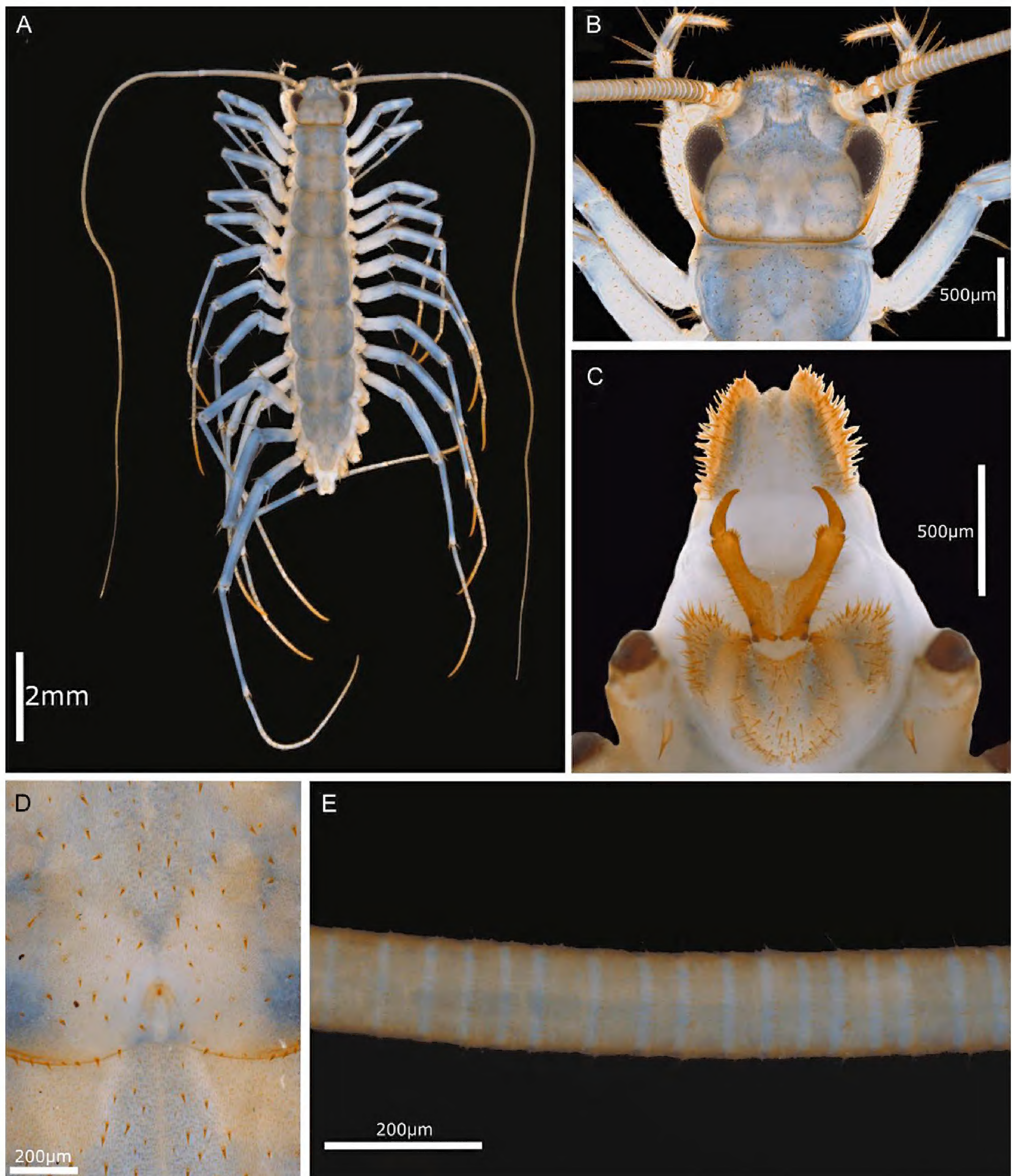


Figure 1. *Dendrothereua lincei* (Wood, 1867), ICN M-Ch-1029. **A.** General habitus, dorsal view. **B.** Cephalic capsule, dorsal view. **C.** Detail of female gonopods, ventral view. **D.** Dorsal surface of tergite. **E.** Detail of the antenna, typical annulations of the family Scutigeridae.

Discussion

Previously, the only Scutigeromorpha species known in Colombia was the widely distributed centipede *Sphenodonema guildingii*, which occurs in the western and eastern Andes and the Amazonian, Pacific, Orinoquia, and Caribbean regions (Chagas-Jr. et al. 2014). The presence of a second scutigerid species in northern South America is an important find because the distribution of this family in the continent was previously restricted to

southern South America to two native monotypic genera including *Thereuoquima admirabilis* Bücherl, 1949 (Bücherl 1949; Chagas-Jr. and Bichuette 2018) and *Brasiloscutigera viridis* Bücherl, 1939 (Bücherl 1939, 1949), and to the widespread exotic house centipede *Scutigera coleoptrata* (Linnaeus, 1758) (Würmli 1977).

The closest known occurrence of *Dendrothereua lincei* to our newly report Colombian locality is Turrialba, Costa Rica (Stoev 2002). The Colombian locality is ~1,150 km southeast of the nearest point in Costa Rica

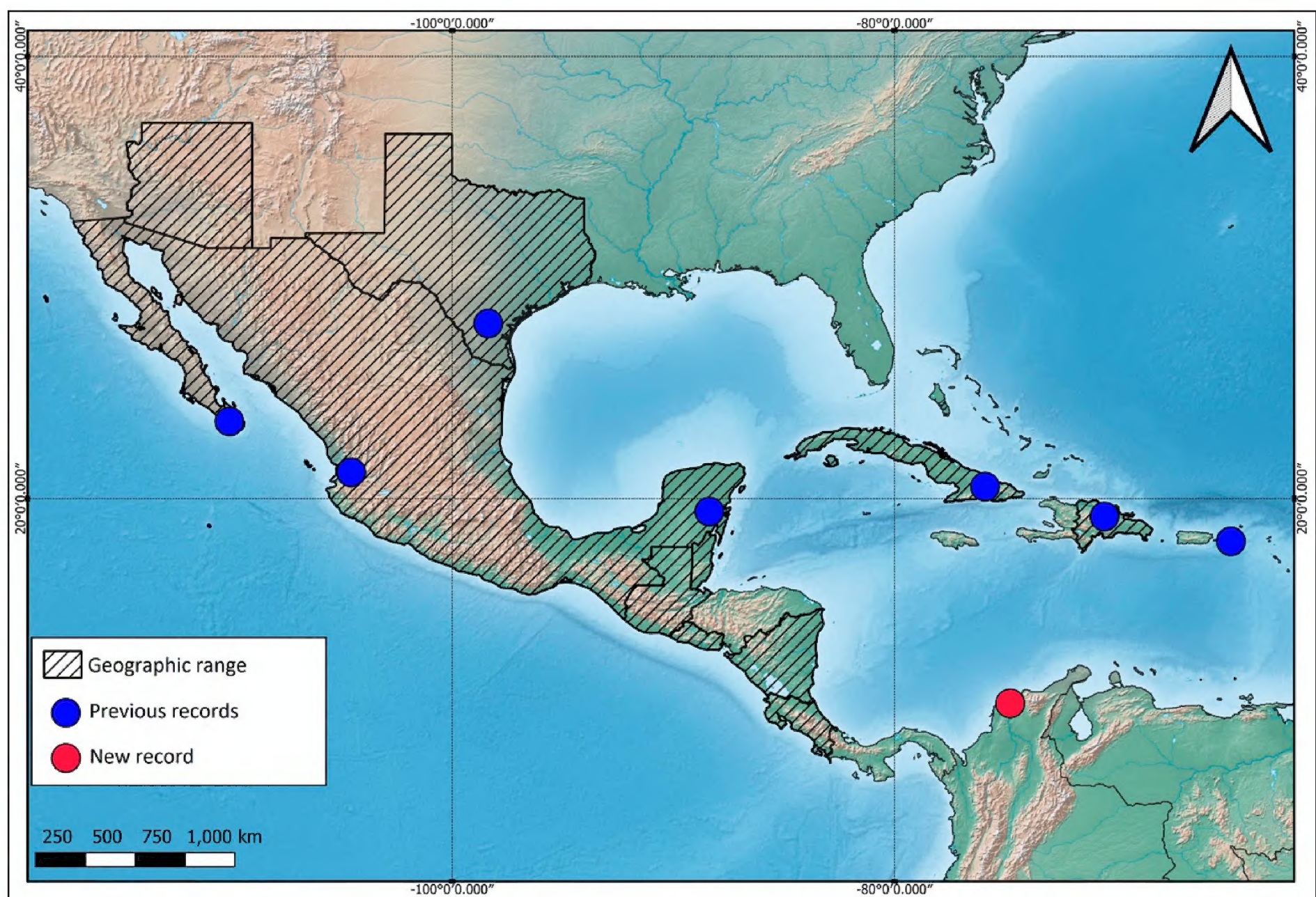


Figure 2. Map showing the distribution and collection locality of *Dendrothereua lincei* (Wood, 1867). Blue dots denote previous records, while the red dot denotes the new location (Department of Atlántico, Colombia).

(on the country's eastern country border). The Colombian occurrence of *D. lincei* does not appear to be an introduction by humans, as there are new, unpublished, and yet unverified data showing that this species also occurs in the Sierra Nevada mountain range in Barrancas, Department of La Guajira (Leonel Martínez pers. comm).

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Authors' Contributions

Resources: SGJ and ACJ. Visualization: SGJ. Writing – original draft: SGJ and ACJ. Writing – review and editing: SGJ and ACJ.

References

- Bonato L, Edgecombe G D, Zapparoli M (2011) Chilopoda—taxonomic overview. In: Minelli A (Ed.) Treatise on zoology. Anatomy, taxonomy, biology. The Myriapoda. Volume 1. Brill, Leiden, the Netherlands, 363–443. https://doi.org/10.1163/9789004188266_020
- Bonato L, Zapparoli M (2011) Chilopoda—geographical distribution. In: Minelli A (Ed.) Treatise on zoology. Anatomy, taxonomy, biology. The Myriapoda. Volume 1. Brill, Leiden, the Netherlands, 327–336. https://doi.org/10.1163/9789004188266_017
- Bonato L, Edgecombe GD, Lewis JGE, Minelli A, Pereira LA, Shelley EM, Zapparoli M (2010) A common terminology of the external anatomy of centipes (Chilopoda). ZooKeys 69: 17–51. <https://doi.org/10.3897/zookeys.69.737>
- Bücherl W (1939) Estudo sobre os Scutigerídeos brasileiros. Folia Clínica de Biologia (4): 105–121.
- Bücherl W (1949) Estudo sobre os Scutigerídeos brasileiros. Memórias do Instituto Butantan 21: 9–54.
- Chagas-Jr. A, Bichuette ME (2018) A synopsis of centipedes in Brazilian caves: hidden species diversity that needs conservation (Myriapoda, Chilopoda). ZooKeys 737: 13–56. <https://doi.org/10.3897/zookeys.737.20307>
- Chagas-Jr. A, Chaparro E, Galvis S, Triana D, Flórez E, Sicoli J (2014) The centipedes (Arthropoda, Myriapoda, Chilopoda) from Colombia: part I. Scutigeromorpha and Scolopendromorpha. Zootaxa 3779 (2): 133–156. <https://doi.org/10.11646/zootaxa.3779.2.2>
- Cupul-Maganã FG (2019) *Scutigera tancitarona* Chamberlin, nuevo sinónimo júnior de *Dendrothereua lincei* (Wood) (Scutigeromorpha: Scutigeridae. Revista Chilena de Entomología 45 (4): 695–698.
- Cupul-Maganã FG, Bueno-Villegas J (2016) Ciempiés (Chilopoda) y milpiés (Diplopoda) depositados en la colección de aracnología del centro de investigaciones biológicas del noroeste, A.C., La Paz, México. Boletín del Museo de Entomología de la Universidad del Valle 17 (1): 17–20.
- Cupul-Magaña FG, Flores-Guerrero US (2018) Registro de *Dendrothereua lincei* (Wood, 1867) de la Isla María Cleofas, Golfo de

- California, México (Scutigeromorpha: Scutigeridae). Boletín de la Sociedad Entomológica Aragonesa (S.E.A.) 63: 293–294.
- Edgecombe GD, Cupul-Magaña FG (2008) Primer registro de *Scutigera lincei* (Wood, 1867) para Jalisco y anotaciones sobre los escutigeromorfos de México (Chilopoda: Scutigeromorpha: Scutigeridae). Dugesiana 15 (1): 17–19. <https://doi.org/10.32870/dugesiana.v15i1.3846>
- Edgecombe GD (2011) Taxonomic overview. Scutigeromorpha. In: Minelli A (Ed.) Treatise on zoology. Anatomy, taxonomy, biology. The Myriapoda. Volume 1. Brill, Leiden, the Netherlands, 363–370. https://doi.org/10.1163/9789004188266_020
- Flores-Urtiaga LL, Cupul-Magaña FG, Flores-Guerrero US (2015) Lista de los ciempiés (Myriapoda: Chilopoda) de Nicaragua. Revista Nicaragüense de Entomología 89: 3–16.
- Instituto Colombiano Agropecuario (2022). Estación piscícola de Repelón. <https://www.ica.gov.co/getdoc/6b38ac22-4940-4111-a75a-686766966639/estacion-piscicola-de-repelon.aspx>. Accessed on: 2022-06-24.
- Iorio É, Coulis M (2020) Étude des myriapodes de Martinique. Avec un pré-atlas partiel et une évaluation préliminaire de leurs enjeux « patrimoniaux ». Rapport de Martinique Entomologie pour la DEAL Martinique, Martinique, 72 pp.
- López-Bonel F, Ávila-Gaxiola CP, Cupul-Magaña, FGC (2019) Ciempiés de Sinaloa, México (Myriapoda: Chilopoda): nuevos registros de especies y ampliación de su distribución estatal. Dugesiana 26 (2): 79–85. <https://doi.org/10.32870/dugesiana.v26i2.7073>
- Martínez-Muñoz CA (2022) *Dendrothereua lincei* (Wood, 1867). <https://myriatrix.myspecies.info/myriatrix/dendrothereua-lincei>. Accessed on: 2022-08-01.
- Mercurio R (2010) An annotated catalog of centipedes (Chilopoda) from United States, Canada and Greenland (1758-2008). Xlibris Corporation, New York, USA, 560 pp.
- Muchmore WB (1993) List of terrestrial invertebrates of St. John, U.S. Virgin Islands (exclusive of Acarina and Insecta), with some records of freshwater species. Caribbean Journal of Science 29: 30–38.
- Perez-Gelabert DE, Edgecombe GD (2013) Scutigeromorph centipedes (Chilopoda: Scutigeromorpha) of the Dominican Republic, Hispaniola. Novitates Caribaeae 6: 36–44. <https://doi.org/10.33800/nc.v0i6.105>
- Stoev P (2002) The scutigeromorphs (Chilopoda: Scutigeromorpha) in the collection of the National Museum of Natural History, Sofia. Historia Naturalis Bulgarica 15: 79–85.
- Wood HC (1867) Descriptions of new species of Texan Myriapoda. Proceedings of the Academy of Natural Sciences of Philadelphia 19: 42–44.
- Würlmli M (1973) Die Scutigeromorpha (Chilopoda) von Costa Rica. Ueber *Dendrothereua arborum* Verhoeff, 1944. Studies on Neotropical Fauna and Environment 8: 75–80. <https://doi.org/10.1080/01650527309360454>
- Würlmli M (1977) Zur Systematik der Gattung *Scutigera* (Chilopoda: Scutigeridae). Abhandlungen und Verhandlungen des Naturwissenschaftlichen Vereins in Hamburg 20: 123–131.